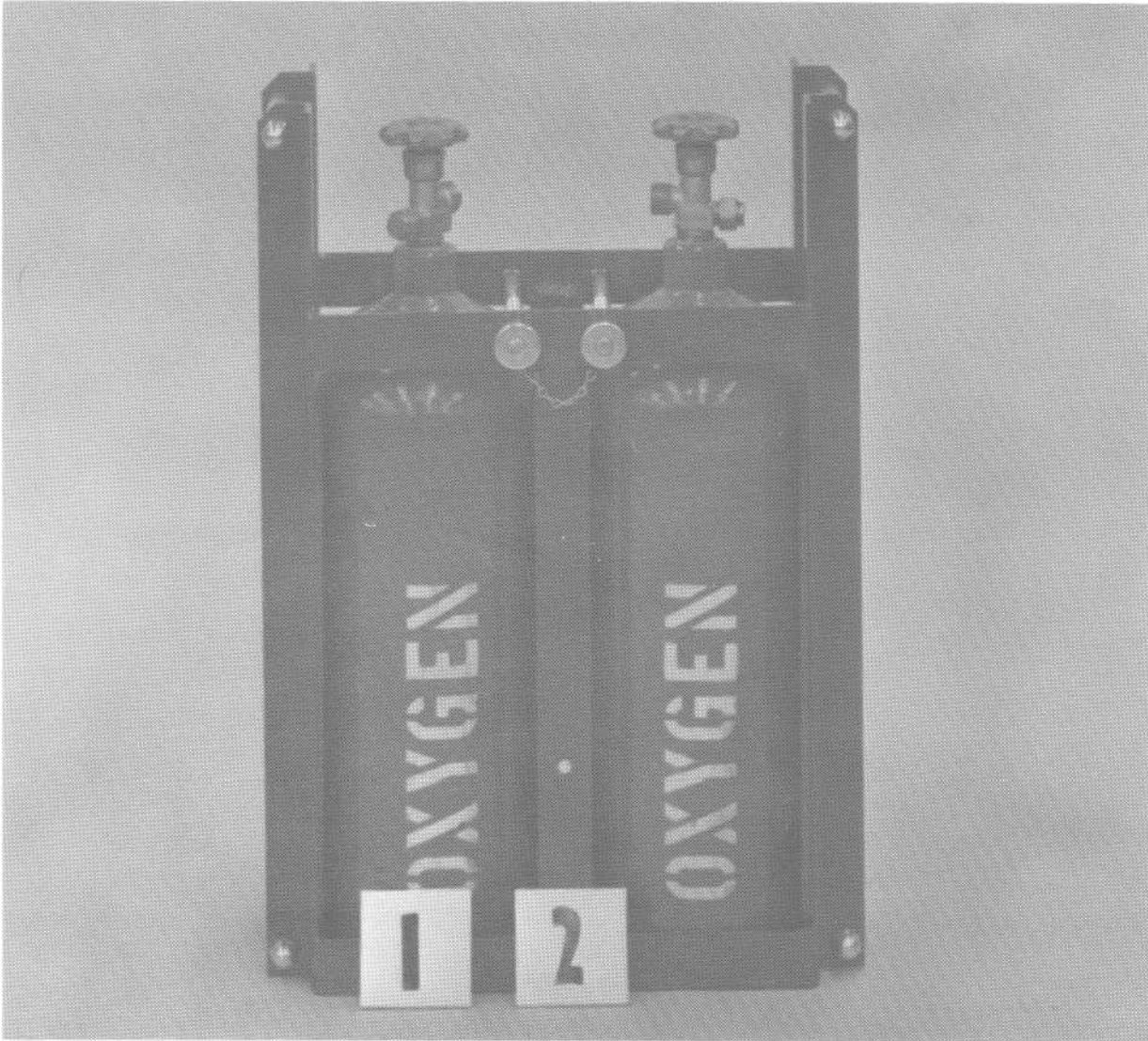


10.3 AUXILIARY CASE WITH OXYGEN CYLINDERS
94-134-044



AUXILIARY CASE WITH OXYGEN CYLINDERS
94-134-044

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
1	Oxygen cylinder	94-208-001	
2	Auxiliary carrying case	94-134-039	

10.4 SPARE PARTS PACKAGE
94-463-041



SPARE PARTS PACKAGE
94-463-041

REF. NO.	DESCRIPTION	CATALOG NO.	NSN NUMBER
1	1 ea. Spare parts box	94-134-036	
2	1 ea. Striker handle, RH	94-370-168	
3	1 ea. Striker handle, LH	94-370-169	
4	1 ea. Battery assembly	96-076-026	
5	1 ea. Torch shield	94-777-109	
6	3 ea. Striker bars	96-070-031	
7	2 ea. Spark arrestors	94-305-009	
8	10 ea. Washers	94-940-109	
9	1 ea. 3/8" collet chuck	94-158-045	
10	1 ea. 3/8" collet nut	94-168-024	
11	1 ea. 1/4" collet chuck	94-158-048	
12	1 ea. 1/4" collet nut	94-168-022	
13	1 ea. Collet extension	94-168-023	
14	1 ea. Collet extension shield	94-777-111	
15	1 ea. Technical manual	89-250-902	
16	1 ea. Harness assembly	94-463-042	

Index

BATTERY

- care and use of, 8
- charger, 8
- charging, 8
- charging after use, 8
- charging before storage, 21
- charging mode switch, 8
- cycle life, 8
- discharged, 8
- extended usage, 8
- float life, 8
- improper ignition effects on, 8
- life cycle, 8
- minimum requirements, 7
- mode switch "cut", 9
- quick connections, 2, 7, 9
- recharging cycle, 8
- rotating main PECU and spare, 16, 21
- strikes per charge, 8

CHARGING THE BATTERY

- mode switch position, 8
- over charging, 8
- reading the meter, 8
- upon receipt, 8
- when to charge, 8

CLEANING

- after heavy use, 15
- after normal use, 15
- the battery assembly after heavy use, 16

CUTTING WITHOUT POWER

- inserting the rod, 9

DISASSEMBLY

- battery assembly, 16
- cleaning the parts, 15
- head assembly, 19
- restrictions, 17
- spark arrestor, 6
- striker, 17
- torch, 19

INSPECTION

- after heavy use, 15, 16
- after normal use, 15
- after use, 13
- battery assembly, 15
- operational, 16
- out of carton, 6
- oxygen system, 15
- quarterly, 8, 16
- spark arrestor, 7

MAINTENANCE

- after heavy use, 15
- after normal use, 15
- battery, 15
- battery after heavy use, 16
- cables, 4
- daily, 15
- rotating/changing the battery, 21
- rotating the batteries, 8
- striker, 17
- torch, 19

OPERATION

- cutting, 12
- holding the striker, 10
- holding the torch, 10
- holding the torch and striker, 10
- holding the torch piercing, 12
- igniting from a battery, 11

- igniting the rod, 11
- piercing, 12

PIERCING

- completing the pierce, 13
- positioning the rod, 13
- technique, 12

REPLACING

- battery, 8, 16, 21
- battery parts, 21
- collet chuck, 19
- collet nut, 19
- cutting rod, 11
- damaged cables, 4
- damaged cutting rod, 11
- limitations, 17
- oxygen hose, 15
- oxygen supply, 12
- spark arrestor, 7, 15, 19
- striker cable, 17
- striker handles, 17
- striker plate, 17
- torch head assembly, 19
- washer, 15, 19

RODS

- damaged, 7
- igniting with Slice Battery Assembly, 9
- igniting with striker, 11
- inserting in torch, 9
- inspection, 7
- removing from a pierce, 13
- removing from pierce, 12
- removing stuck rod, 13
- replacing, 11, 13
- sealed, 11
- seating to the washer, 15
- stopping the burn, 14
- to use, 2

Spark Arrestor

- inspection, 6

STRIKER

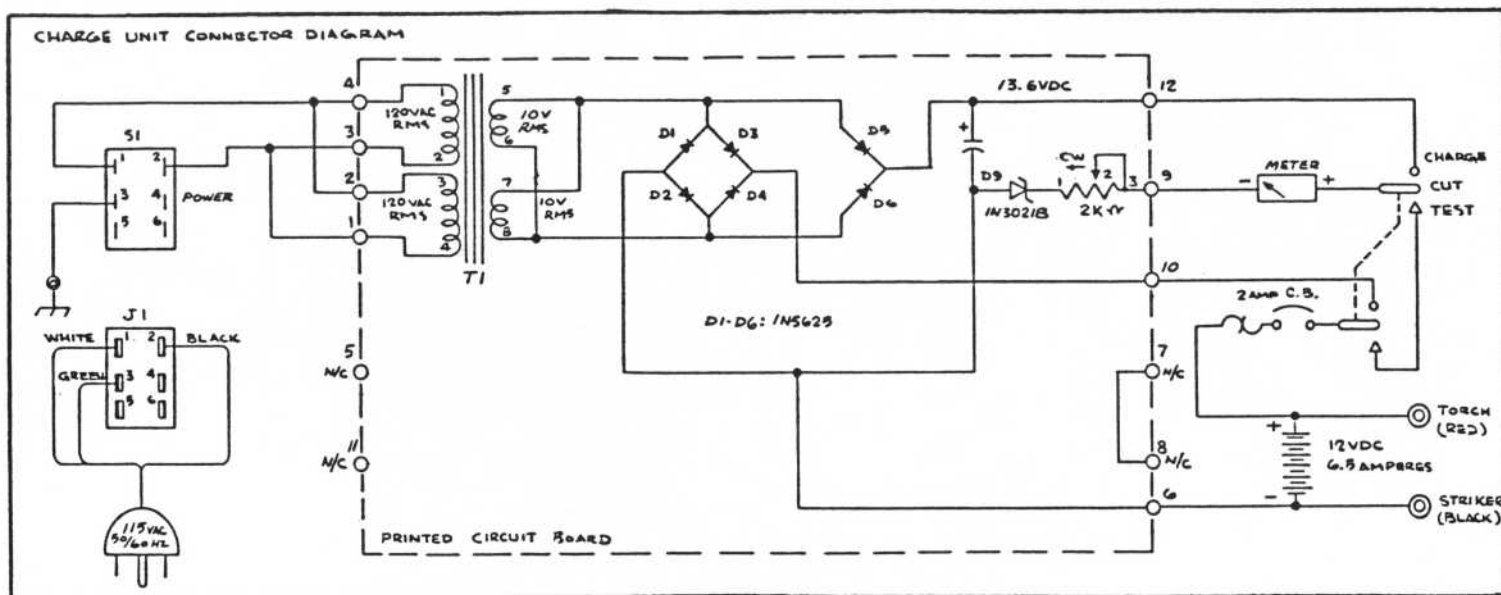
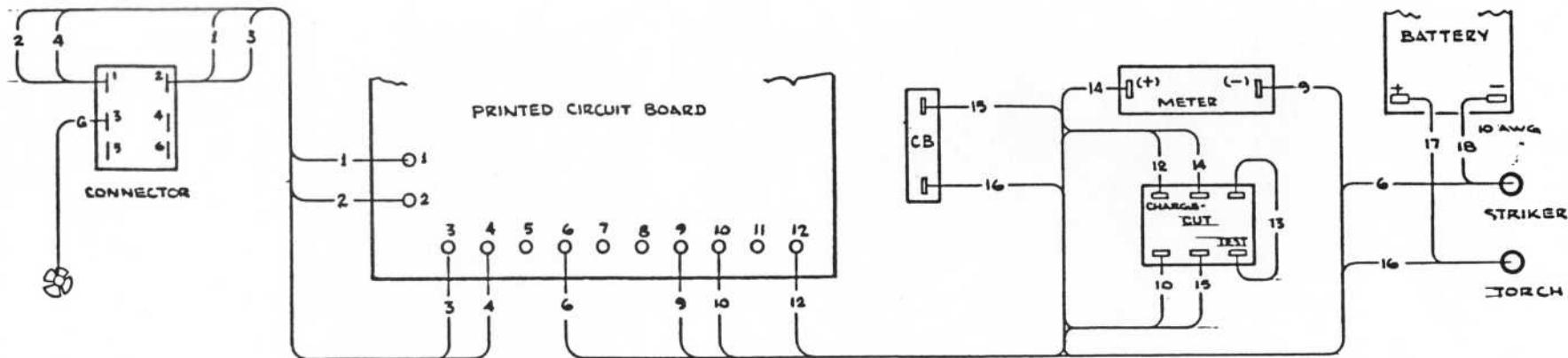
- battery quick connections, 7
- description, 1
- inspecting and cleaning, 14
- receiving inspection, 6

TECHNIQUE

- beginning the cut, 12
- completing a pierce, 13
- cutting, 12
- getting ready, 9
- igniting the rod, 10, 11
- inserting the rod, 9
- opening a plugged rod, 11
- piercing technique, 12
- removing a stuck rod, 13

TORCH

- and oxygen, 7
- battery quick connections, 7
- inserting the cutting rod, 9
- inspection after using, 13
- model description, 1
- receiving inspection, 6
- unpacking, 6



FSCM #09687
Contract #N00104-88-C-1233

REV	NO. 174) REVISED	DATE	BY	TOLERANCES	MATERIAL	Arcair R.T. 33 N. COMPANY LANCASTER, OHIO
A	DIAGRAM REVD	10/10/88	29	FRACTIONS = 1/16		
	12 V. CHARGING			X = .025		
	SYSTEM			XX = .015		
				XXX = .005		
				ANGLES = 1/2"		

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TITLE: BATTERY CHARGER (PGU) CONNECTION DIAGRAM
 SCALE: NONE
 DATE: 10-10-88
 DW: A.T. APPD: B.D. 89-250-913-23

NAVSEA (USER) TECHNICAL MANUAL DEFICIENCY/EVALUATION REPORT (TMDER)
(NAVSEA S0005-AA-GYD-030/TMMP & NAVSEAINST 4160.3)

INSTRUCTIONS: Insert classification at top and bottom of page. Read the following before completing this form. Continue on 8½" × 11" paper if additional space is needed.

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4. FOR ADDITIONAL INFORMATION, CALL AUTOVON 360-4805/5084 OR COMMERCIAL 805-982-4805/5084.

1. NAVSEA NO. ★ S6290-AQ-MMC-010/09687	2. VOL. PART ★ 1	3. TITLE ★ Operating, Maintenance Instructions and Parts List
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4. REV. DATE OR TM CH. DATE 30 May 1989	5. SYSTEM/EQUIPMENT Exothermic Cutting Unit	6. IDENTIFICATION/NOMENCLATURE (MK/MOD/AN) PECU
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7. USER'S EVALUATION OF MANUAL (Check Appropriate blocks)

A. EXCEL- LENT	B. GOOD	C. FAIR	D. POOR	E. COM- PLETE	F. INCOM- PLETE
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8. GENERAL COMMENTS
9. RECOMMENDED CHANGES TO PUBLICATION

PAGE NO. A.	PARA- GRAPH B.	LINE NO. C.	FIG. NO. D.	TABLE E.	F. RECOMMENDED CHANGES AND REASONS

10. ORIGINATOR AND WORK CENTER (PRINT)	11. ORIGINATOR'S RANK, RATE OR GRADE, AND TITLE	12. DATE SIGNED
13. SIGNATURE OF WORK CENTER HEAD	14. SIGNATURE OF DEPARTMENT OFFICER	15. AUTOVON/COMM. NO.
16. SHIP HULL NO. AND/OR STATION ADDRESS (DO NOT ABBREVIATE)		

17. THIS SPACE ONLY FOR NSDSA

A. CONTROL NO.	B. COG ISEA	C. DATE	D. PRIORITY	E. TRANSMITTED TO			
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1

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SHIP SYSTEM Working Spaces 660	SUBSYSTEM Damage Control Stations 6641	MRC CODE 6641 W-4	
SYSTEM Damage Control Stations 664	EQUIPMENT Portable Exothermic Cutting Unit (PECU)	RATES DC/HT/ MM3	M/H 0.5
MAINTENANCE REQUIREMENT DESCRIPTION 1. Test PECU installed battery. 2. Charge installed battery.		TOTAL M/H 0.5 ELAPSED TIME 0.5	
SAFETY PRECAUTIONS 1. Forces afloat comply with NAVOSH Program Manual for Forces Afloat, OPNAVINST 5100.19 series. 2. Lead acid battery will produce hydrogen gas during charging operations. Charge only in a well ventilated space and post "NO SMOKING" and "BATTERY ON CHARGE" sign in space. 3. Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electrical circuit.			
TOOLS, PARTS, MATERIALS, TEST EQUIPMENT TEST EQUIPMENT 1. [3632] Multimeter, digital, SCAT-4245, Model 77/AN MISCELLANEOUS 1. [1365] Technical manuals/drawings (Exothermic cutting unit Portable (PECU) ARCAIR, Operating Instructions, Maintenance Instructions, and Parts List.) (NSN: 0910-LP-343-1700) NOTE: Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for stock number identification.			
PROCEDURE NOTE 1: Consult PECU operating instructions supplied with PECU for operating procedures.			
DISTRIBUTION STATEMENT D Distribution authorized to DOD components and DOD contractors only; critical technology; June 1993. Other requests for this document shall be referred to Naval Sea Systems Command (SEA 04TD). Destroy by any method that will prevent disclosure of contents or reconstruction of the document.			
LOCATION Equipment Guide List Recommended		DATE June 1993	

PROCEDURE (Contd)	
1. Test PECU Installed Battery. a. Place CHARGER/CUT/TEST switch in TEST position. Observe RECHARGE/GOOD meter. Pointer should indicate well into green area. If pointer does not indicate well into green, 1/4 to 1/2, proceed to step 2.f. If reading is less than 11.6 VDC, proceed to step 2. and charge installed battery.	
2. Charge Installed Battery.	
WARNING: Lead acid battery will produce hydrogen gas during charging operations. Charge only in a well ventilated space and post "NO SMOKING" and "BATTERY ON CHARGE" sign in space.	
NOTE 2: Battery should not be left on charger for more than 16 continuous hours. Battery may require additional charging if unable to ignite a rod.	
NOTE 3: Battery will gradually lose its charge over a period of time. To ensure peak performance when needed, place battery on charge 4 to 6 hours per week while inactive. a. Connect charging cord (supplied with PECU) to charger, and then to a 120 volt AC outlet.	
NOTE 4: If needle indicates in or near red recharge area, charging time will be longer than 4 to 6 hours required. b. Place CHARGER/CUT/TEST switch in CHARGE position and charge for 4 to 6 hours or until battery is fully charged.	
NOTE 5: RECHARGE/GOOD meter reading shows relative output of charger, not state of battery, when CHARGER/CUT/TEST switch is placed in CHARGE position. c. After battery has been fully charged, place CHARGER/CUT/TEST switch in TEST position, if indicated reading is higher than reading in step 1.a., omit steps 2.f. through 2.g. d. Place CHARGER/CUT/TEST switch in CUT position. e. Disconnect charging cord first from 120 volt AC outlet and then from charger. Restow cord in PECU.	
NOTE 6: Multimeter reading on a recently charged battery may be as high as 13.6 VDC, approximately 30 minutes after unplugging charger; retest battery. Readings should be between 12.6 to 12.8 VDC. f. Test battery using multimeter as follows: (1) Place POSITIVE lead in TORCH connection. (2) Place NEGATIVE lead in STRIKER connection. (3) Meter should be between 12.6 to 12.8 VDC. g. If reading is less than 11.6 VDC notify work center supervisor and recharge battery.	
CAUTION: Stow PECU in an upright position. Secure properly to avoid tipping or dropping.	

PROCEDURE (Cont.)

WARNING: Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electrical circuit.

h. Stow PECU.

PAGE 3 OF 3

B6CG

N

SHIP SYSTEM Working Spaces 660	SUBSYSTEM Damage Control Stations 6641	MRC CODE 6641 Q-6	
SYSTEM Damage Control Stations 664	EQUIPMENT Portable Exothermic Cutting Unit (PECU)	RATES DC/HT/ MM3 EM3	M/H 1.0 1.0
MAINTENANCE REQUIREMENT DESCRIPTION 1. Test and inspect PECU.		TOTAL M/H 2.0 ELAPSED TIME 1.0	
SAFETY PRECAUTIONS 1. Forces afloat comply with NAVOSH Program Manual for Forces Afloat, OPNAVINST 5100.19 series. 2. Oil or grease in presence of oxygen under pressure ignites violently. Never direct jet toward any oily or greasy surfaces. Do not handle cylinders, valves, regulators, or any part of PECU with oily hands or oily gloves, or allow any part of PECU to contact oil or grease. 3. Do not let battery leads touch. Insulate each lead as it is removed. 4. Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electric circuit.			
TOOLS, PARTS, MATERIALS, TEST EQUIPMENT MATERIALS 1. [1620] Insulating varnish, electrical, Hazardous Material, Group 1 2. [1624] Tape, insulation, electrical, MIL-I-24391 TOOLS 1. [1198] Screwdriver, flat tip, 6" gen purpose 2. [3433] Wrench, box and open end, combination, 7/16", 5" NOTE: Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for stock number identification.			
PROCEDURE NOTE 1: Consult PECU operating instructions supplied with PECU for operating procedures and component diagrams.			
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LOCATION Equipment Guide List Recommended		DATE June 1993	N

PROCEDURE (Contd) 1. Test and Inspect PECU. a. Set up a safe, well ventilated area to operate PECU.	
NOTE 2: This procedure ensures that battery has maintained its charge and enables operators to practice cutting.	
WARNING: Oil or grease in presence of oxygen under pressure ignites violently. Never direct jet toward any oily or greasy surfaces. Do not handle cylinders, valves, regulators, or any part of PECU with oily hands or oily gloves, or allow any part of PECU to contact oil or grease.	
b. Operate PECU by igniting a rod at least 3 times. c. Clean and inspect PECU in accordance with MRC R-47.	
NOTE 3: Ensure installed battery has been fully charged before it is replaced.	
NOTE 4: Battery pack is attached to PECU with 2 screws and 2 spacers. Spacer is held in place by screw and will fall out of place when screw is removed.	
d. Remove battery assembly from PECU.	
CAUTION: Battery connections are energized. Exercise extreme caution while removing battery leads.	
e. Disassemble PECU battery pack assembly by removing 6 screws holding case together.	
WARNING: Do not let battery leads touch. Insulate each lead as it is removed.	
f. Remove nut and washer holding each battery lead (one at a time).	
g. Remove protective cover from spare battery in spare parts kit and place it on battery removed in step 1.d.	
h. Install spare battery into PECU battery pack assembly. Ensure uninsulated leads do not touch. Place positive lead on bottom post and secure with washer and nut. Place negative lead on top post and secure with washer and nut. Tighten both nuts.	
i. Seal battery lead and post connections with varnish.	
j. Reassemble PECU battery pack assembly. Do not overtighten screws.	
k. Test operate touch by igniting 1 rod in a well ventilated area.	
1. Charge newly installed battery in accordance with MRC W-4.	
CAUTION: Stow PECU in an upright position. Secure properly to avoid tipping or dropping.	
WARNING: Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electric circuit.	

PROCEDURE (Contd)

NOTE 5: Ensure collet nut is loose to prevent damage to internal washer.

m. Stow PECU.

Hazardous Material Disposal Instructions

a. Comply with own ship/station procedure for handling/disposal of hazardous materials/waste identified in the Tools, Parts, Material, Test Equipment block. General shipboard disposal procedures follow:

Group 1: Containerize waste in original container, if possible, or use standard container as listed in the Naval Ships' Technical Manual, S9086-T8-STM-000/CH-593 R2 Chapter 593, Pollution Control. Store in accordance with NSTM 670. Mark, label, or tag the container with the specific contents and any information on the contaminants. This information must also be provided on the DD Form 1348-1 at the time of offloading.

PAGE 3 OF 3

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SHIP SYSTEM Working Spaces 660	SUBSYSTEM Damage Control Stations 6641	MRC CODE 6641 R-47	
SYSTEM Damage Control Stations 664	EQUIPMENT Portable Exothermic Cutting Unit (PECU)	RATES DC/HT/ MM3	M/H 2.0
MAINTENANCE REQUIREMENT DESCRIPTION 1. Clean and inspect PECU.		TOTAL M/H 2.0 ELAPSED TIME 2.0	
SAFETY PRECAUTIONS 1. Forces afloat comply with NAVOSH Program Manual for Forces Afloat, OPNAVINST 5100.19 series. 2. Oil or grease in presence of oxygen under pressure ignites violently. Never direct jet toward any oily or greasy surfaces. Do not handle cylinders, valves, regulators, or any part of PECU with oily hands or oily gloves, or allow any part of PECU to contact oil or grease. 3. Never bleed oxygen in confined spaces. Limit bleeding time to 10 seconds. 4. Do not let arc or cutting flame touch cylinders, cylinder safety devices, valve, regulator, or hose. 5. Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electrical circuit.			
TOOLS, PARTS, MATERIALS, TEST EQUIPMENT			
MATERIALS 1. [0294] Cloth, cleaning 2. [0754] Leak test compound, MIL-L-25567, TYPE Hazardous Material User's Guide (HMUG) Group 7, Disposal Method 3		MISCELLANEOUS 1. [2000] MRC(s) (W-4) 2. Exothermic cutting unit Portable (PECU) ARCAIR, Operating Instructions, Maintenance Instructions and Parts List. [NSN 0910-LP-343-1700] 3. Standard shipboard cutting welding combination pressure and regulator gage	
TOOLS 1. [1198] Screwdriver, flat tip, 6", general purpose 2. [3433] Wrench, box and open end, combination, 7/16", 5" 3. Wrench set, supplied with PECU			
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LOCATION Equipment Guide List Recommended		DATE June 1993	

HAZARDOUS MATERIALS CONTROL STATEMENT (U) The Hazardous Material Users Guide (HMUG), OPNAV P-45-110-91, provides additional control measures, precautions, personal protective equipment (PPE), and spill controls for the hazardous material(s) identified in the Tools, Parts, Materials, Test Equipment block.	
TOOLS, PARTS, MATERIALS, TEST EQUIPMENT (Cont'd) NOTE: Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIG) for stock number identification.	
PROCEDURE NOTE 1: Accomplish after each use.	
NOTE 2: Consult PECU operating instructions supplied with PECU for operating procedures and component diagrams.	
1. Clean and Inspect PECU. a. Disconnect torch from battery assembly (red female cam-lok connector). Ensure oxygen valve on cylinder is shut.	
WARNING: Oil or grease in presence of oxygen under pressure ignites violently. Never direct jet toward any oily or greasy surfaces. Do not handle cylinders, valves, regulators, or any part of PECU with oily hands or oily gloves, or allow any part of PECU to contact oil or grease.	
NOTE 3: Ensure washer that seats rod is not cut or worn. If it shows signs of cutting or wear, replace washer. A worn washer can block oxygen flow, preventing rod from burning properly. A cut washer can allow oxygen to leak around rod, preventing proper operation.	
b. Remove collet nut, collet, washer, spark arrestor, and shield extension if in place. Inspect all components for dirt, damage and uneven wear. Replace damaged or worn parts.	
CAUTION: Do not use soap or solvents to clean parts. Use only clean fresh water and be sure parts are dry before reassembly.	
c. Wash dirty parts in clean fresh water and dry with a clean lint-free cloth. If spark arrestor is coated with mud or other substance, replace it with a new spark arrestor.	
NOTE 4: If dirt or other substance have passed through spark arrestor, they may have contaminated oxygen valve assembly (in torch handle) and/or oxygen hose. Inside of these parts cannot be cleaned and must be replaced if dirt or other substances have contaminated them.	

PROCEDURE (Contd)

- d. Inspect torch handle and head assembly for dirt, uneven wear, and damage. If head assembly is dirty, disassemble head assembly, wash with clean fresh water, and dry with a clean lint-free cloth. Replace worn or damaged parts.
- e. Reassemble torch handle, ensuring all parts are dry.
- f. Reassemble spark arrestor, washer, shield extension if used, collet, and collet nut. Ensure spark arrestor is placed into torch head assembly point first.
- g. Disconnect striker lead from battery assembly (black female cam-lock connection).
- h. Inspect striker for dirt and damage. If striker is dirty, disassemble striker, clean with wire brush, then rinse with fresh water and dry with a lint-free cloth. Replace damaged or worn parts.
- i. Reassemble striker if applicable.
- j. Inspect battery assembly:
 - (1) Clean battery assembly with a clean lint-free cloth.

NOTE 5: If battery assembly was subjected to use in harsh conditions (muddy, dirty water, or salt water), then follow steps 1.j.(2) through 1.j.(4). If not, continue to step 1.k.

- (2) Remove cover/top half of case and look for dirt and/or water.
- (3) If battery assembly is wet or dirty, flush with clean fresh water and dry with a lint-free cloth.
- (4) Reassemble battery assembly.

- k. Connect striker to battery assembly (black cam-lok connector to black female connection), and connect torch to battery connection (red cam-lok connector to red female connection).

NOTE 6: Standard shipboard cutting-welding combination pressure and regulator gage will be used as test gage.

CAUTION: Ensure oxygen valve on cylinder is shut.

1. Using wrench set supplied with PECU, remove oxygen regulator and install test gage; tighten fitting firmly. Test all oxygen connections for tightness.

WARNING: Never bleed oxygen into confined spaces. Limit bleeding time to 10 seconds.

- m. Open oxygen cylinder valve slowly, observe pressure until maximum psi is indicated on gage. Close cylinder valve. If pressure reading is less than 1500 psig, replace oxygen cylinder.
- n. Using wrench set supplied with PECU, crack open oxygen test gage connection slightly to bleed off pressure. Remove test gage.

PAGE 3 OF 5

BACK

N

PROCEDURE (Contd)

CAUTION: Cylinder valve and safety device may have or develop leakage or other unsatisfactory conditions for which one should inspect. Cylinder need not be detached from unit. If replacement cylinder is being installed, it is best to perform steps 1.o. and 1.p. before attachment to unit. Steps 1.o. and 1.p. are not necessary for depleted cylinder that is to be replaced.

- o. Test around cylinder valve thread connection and closed valve stem with leak test compound.
- p. Examine oxygen cylinder valve safety device for leakage and fusible metal extrusion out of relief holes.
- q. Perform following steps, as applicable:
 - (1) Remove depleted cylinder and install replacement; tighten fittings firmly.
 - (2) Reinstall oxygen regulator; tighten fitting firmly.
- r. With cylinder attached to unit, open cylinder valve and repeat leak test around valve stem.
- s. Leak test all fittings. Close cylinder valve.
- t. Depress oxygen lever on torch handle to allow pressure to bleed off through torch.
- u. Remove all leak test compound from unit and cylinder valve.

CAUTION: Torch and hose must always be firmly connected.

NOTE 7: If steps 1.j.(2) through 1.j.(4) were performed, at least 1 rod must be ignited to ensure proper operation of PECU.

WARNING: Do not let arc or cutting flame touch cylinders, cylinder safety devices, valve, regulator, or hose.

- v. In a safe, well ventilated area ignite at least 1 rod.
- w. Verify that sufficient rods and oxygen cylinders are available.
- x. Charge battery in accordance with MRC W-4.

CAUTION: Stow PECU in an upright position. Secure properly to avoid tipping or dropping.

WARNING: Do not store PECU and/or spare cylinders in a confined space where ambient temperature exceeds 125° Fahrenheit. Do not store cylinders where they may form a part of an electrical circuit.

NOTE 8: Ensure collet nut is loose to prevent damage to internal washer.

- y. Stow PECU.

PAGE 4 OF 5

BACK

N

PROCEDURE (Contd)

DISPOSAL METHODS FOR HAZARDOUS MATERIAL/WASTE IDENTIFIED IN THE
TOOLS, PARTS, MATERIAL, AND TEST EQUIPMENT BLOCK

Method 3: Discharge overboard outside of 12 nm of U.S. shore.
Instructions on discharge in foreign water should
be requested from Shipboard Hazardous Waste
Coordinator. If material is an acid or alkali,
follow neutralization instructions in Naval Ships'
Technical Manual (NSTM) S9086-T8-STM-010/CH-593,
Pollution Control. Store packaging and containers
for reuse or dispose as solid waste, in accordance
with NSTM, Chapter 593.

PAGE 5 OF 5

BACK

N